

Patent claims

1. Device (100) for protecting individuals during a frontal impact with a motor vehicle, which has a front hood (300), covering the front body and extending up to the front windshield, which is pivoted to the chassis of the front body by a hinge arrangement (200) on both sides of the vehicle at the windshield end, consisting of a hinge beam (2) for indirect linking of the hinge arrangement (200) at the chassis, being arranged so that it can raise up on the chassis of the front body, and an energy accumulating mechanism engaging with the hinge beam (2) in the form of a spring accumulator arrangement (4), as well as a sensor-controlled holding device (11) for an active engagement with the hinge beam (2), so that in the normal state the hinge beam is held down and in event of a collision it can be released by sensor activation for a limited raising movement, characterized in that a guiding base plate (8) with double linear guidance is provided in a housing (1) as a mounting plate for the hinge beam (2), to which the hinge beam (2) is joined off-center by means of a shaft (3) in seesaw fashion, and which actively engages with the spring accumulator arrangement (4) and the sensor-activated holding device (11).
2. Device per claim 1, characterized in that a pretensioning plate is arranged between guiding base plate (8) and spring accumulator arrangement (4), which is coordinated with another holding device (6), coupled to the holding device (11) for the guiding base plate (8), being on the one hand in direct active contact with the springs (4) of the spring accumulator arrangement and on the other hand in direct active contact with the guiding plate (8).

3. Device per claim 2, characterized in that both the guiding base plate (8) and the pretensioning plate (5) are configured as U-shaped profile pieces and both have the profile opening on top, under direct contact of the legs of the profile of the pretensioning plate (5) with the junction yoke of the profile of the guiding base plate (8), and the profile of the guiding base plate (8) has a bevel (8a) for the seesaw motion of the hinge beam (2) when it is raised.
4. Device per one of claims 1 to 3, characterized in that the spring accumulator arrangement has two compression springs (4) arranged at a distance along the lengthwise dimension of the guiding base plate (8), which at one end thrust against the bottom of the housing and can be pretensioned at the plate side and also be released by the sensor-controlled holding device (6,11).
5. Device per claim 4, characterized in that guide pillars (9) guided in guide sleeves (7) fixed to the housing are accommodated inside the compression springs (4), being screwed together with the guiding base plate (8) at the top end.
6. Device per one of claims 1 to 5, characterized in that the sensor-activated holding device consists of at least one spring-loaded detent pawl (6,11) for the active engagement at the plate end, having a cam (15) for an active contact with the pin-ejecting pyrotechnical trigger (16,17).
7. Device per one of claims 1 to 6, characterized in that a mechanism (19) is provided for the deformable locking of the hinge beam (2) in the raised state and for its reversing into the basic state.
8. Device per claim 7, characterized in that the mechanism (19) has a U-shaped

holder (20), secured at the plate side, in which two detent pawls (21) can swivel in opposite direction, each possessing a slotted link (21b) to accommodate a bolt (25) of a plunger (24) arranged spring-loaded in the holder (20) and a stopping edge (21a) for an active locking engagement with a housing edge (1c) and a front edge (21c) for an active engagement with the bolt (25) in the raised state of the hinge beam (2).

9. Device per claim 8, characterized in that the bolt (25) is designed with a predetermined shearing force or deforming force.
10. Device per claim 8 or 9, characterized in that the mechanism (19) is configured such that, by applying an external force to the plunger (24) in the raised state of the hinge beam (2), the detent pawls (21) after eliminating the locking can be swung back with the help of the front hood as a lever arm and the hinge beam (2) can be returned to its basic position against the spring force of the spring accumulator arrangements.